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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,201	07/08/2003	Chi Fai Liu	3409-129	9686
22204	7590	06/28/2006	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			ALMO, KHAREEM E	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/616,201	LIU, CHI FAI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Khareem E. Almo	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2006.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-3, and 6-10 is/are rejected.  
 7) ☒ Claim(s) 4 and 5 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. The amendment filed on 4/4/2006 has been received and entered in the case.
2. The indicated allowability of claims 1-9 are withdrawn in view of the newly discovered reference(s) to applicants own admitted prior art. Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by applicant's own admitted prior art.

With respect to claim 1, Figure 1 of applicants own admitted prior art discloses a sawtooth generator for generating a sawtooth waveform as a function of a periodic pulse (30) coupled to said generator, comprising: a first capacitor (28) that is charged as a function of said periodic pulse and then discharged at a predetermined rate such that the voltage on said first capacitor defines said sawtooth waveform; and a reference circuit for limiting the peak voltage of said sawtooth waveform as a function of a predetermined reference voltage (Vcc), said reference circuit including a zener diode (26) for generating said predetermined reference voltage in response to a predetermined bias current when said zener diode is reverse biased, a first circuit (32

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36) coupled between said zener diode and said first capacitor and operative to limit the peak voltage on said capacitor as a function of said predetermined voltage, and a second circuit (32) for providing said predetermined bias current as a function of said periodic pulse such that said predetermined bias current is turned on during the time said first capacitor is being charged and off for a substantial amount of the time when said first capacitor is discharging.

With respect to claim 2, Figure 1 of applicants own admitted prior art discloses a sawtooth generator of claim 1, wherein said periodic pulse is generated by a zero crossing detector (30) having two terminals to which an AC input is coupled, said detector for detecting each zero crossing of said AC input and generating said periodic pulse for each said zero crossing.

With respect to claim 3, Figure 1 of applicants own admitted prior art discloses a sawtooth generator of claim 1, wherein said second circuit comprises: a first transistor (22) having a base, an emitter coupled to ground, and a collector; said zener diode (26) having an anode and a cathode; said collector coupled to said anode of said zener diode at a first node; said periodic pulse being coupled to said base through a first resistor (20) such that said first transistor is switched on as a function of said periodic pulse, and a second (18), third (16), and fourth (44) resistor connected in series between a DC supply voltage ( $V_{cc}$ ), and said first node; wherein said predetermined bias current is provided to said zener diode as a function of said periodic pulse.

With respect to claim 6, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 3, wherein said second circuit further comprises: a third

capacitor (24) connected in parallel across said emitter and collector of said first transistor (22).

With respect to claim 7, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 1, further including a second transistor (32) having a base coupled to the junction of said second (18) and third resistor (16), an emitter connected to the junction of said third (16) and fourth (44) resistor, and a collector coupled to said first capacitor (28) through a fifth resistor (38).

With respect to claim 8, Figure 1 of applicants own admitted prior art discloses sawtooth generator of claim 1, further including a constant current source (48) for discharging said first capacitor (28).

With respect to claim 9, Figure 1 of applicants own admitted prior art discloses a sawtooth generator for generating a sawtooth waveform at an output terminal and including a first capacitor (28), a first circuit (22) for charging said first capacitor to a predetermined voltage as a function of an input pulse, a second circuit (48) for discharging said first capacitor at a controlled rate, and a third circuit (38) for generating a voltage at said output terminal as a function of the voltage across said first capacitor, a reference circuit for limiting the peak voltage on said first capacitor comprising: a zener diode (26) for generating a predetermined reference voltage in response to a predetermined bias current when said zener diode is reverse biased, a fourth circuit (34) coupled between said zener diode and said first capacitor and operative to limit the peak voltage on said capacitor as a function of said predetermined reference voltage; and a fifth circuit (32) for providing said predetermined bias current as a function of said

periodic pulse such that said predetermined bias current is turned on during the time said first capacitor is being charged and off for a substantial amount of the time when said first capacitor is discharging.

With respect to claim 10, Figure 1 of applicants own admitted prior art discloses a reference circuit for providing a reference voltage during a predetermined time interval comprising: a zener diode (26) for providing said reference voltage in response to a predetermined bias current when said zener diode is reverse biased, and a bias control circuit (32) for generating said predetermined bias current only during said predetermined time interval such that said zener diode provides said reference voltage only during said predetermined time interval.

5. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Anderson (US 3202937).

With respect to claim 10, Figure 3 of Anderson discloses a reference circuit for providing a reference voltage during a predetermined time interval comprising: a zener diode (40) for providing said reference voltage in response to a predetermined bias current when said zener diode is reverse biased, and a bias control circuit (36, 34, 26, 30, 24 and 22) for generating said predetermined bias current only during said predetermined time interval such that said zener diode provides said reference voltage only during said predetermined time interval (Note the predetermined time interval can be any range of time because it is not specified by the applicant. The discharge time of

the capacitor indicates there is a predetermined time period in which the capacitor is discharging and providing the reference voltage. )

***Allowable Subject Matter***

6. Claims 4-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claim 4, the prior art fails to suggest or disclose the sawtooth generator wherein said first circuit comprises a first and second diode connected in series with said zener diode between the first node and said first capacitor at a second node as disclosed.

***Response to Arguments***

7. Applicant's arguments filed 4/4/2006 have been fully considered but they are not persuasive.

With respect to applicants arguments the predetermined time interval can be any range of time because the applicant does not specify it. In the Anderson reference the predetermined interval is the range of all time because the control circuit is constantly on.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khareem E. Almo whose telephone number is (571) 272-5524. The examiner can normally be reached on Mon-Fri (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



KEA  
6/21/2006



Quan Tra  
Primary Examiner